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THE ENEMY.

To most of our readers this word may, and doubtlessly does, sound very stale and tiresome. We have all had enough of war and military glory, and the one aspiration now is for peace; never before did the word sound so sweetly. We are told in the Gospel to *love* our enemies; these may be classed under two heads, private and public; the latter are those whom our Declaration of Independence happily recognizes as "enemies in war, in peace friends." Private enemies are bad enough and we leave them to the Gospel dispensation, but the public enemy is our present theme, and albeit we are at peace with all the world as a nation, (and we would feign hope also as editors), yet there is an enemy against whom we find it our bounden duty, as faithful watchmen of the public weal, to lift up our voice of warning, and to cry aloud. It is a public enemy, an enemy to our nation at large, to every man, woman and child that lives on this blessed continent. An enemy with whom we can make no terms; who will never yield until utterly conquered; who must conquer us unless we subdue him; a robber and despoiler, the march of whose army will not be told by desolating swarths of separate columns, but proceeding in a line of battle whose flanks rest on either ocean, will leave one general ruin in his rear. This enemy is Insect Life. He is commanded by two able generals, both as cruel and remorseless as they can be. To personify them, we will say that the commander-in-chief is General Curculio, and his lieutenant is the Apple Moth. They have invaded us with full strength, and the cry is still they come. They have no base, but live on the country through which they march. Cruel and unsparing, moving on conquering and to conquer; holding and occupying the land. Now then as the vigilant and faithful watchman on the walls, we sound the alarm, and cry "to arms" Our thoughts have been led in this direction by the scarcity of fruit in our markets, and its corresponding high price. The apple for instance, dearer in the New York market, even in its season, than the orange; our

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own most common and plentiful fruit become dearer than an imported and tropical fruit. And yet we may say of the apple, that it is not a luxury, but become just as much a household necessity as the potato. The other fruits we can perforce look upon as luxuries, but not so the apple, this we *must* have; our little ones require apples for health sake; they cry for them more than they are said to do for Sherman's lozenges, and those cries must be stilled by us at an expense of from three to five cents for every plaint. Apple sarse and apple butter, every-day things of the good old past, are now enumerated among the transitory blessings of this life. How different all this from our younger days! We now live in the State of New Jersey, and we remember that in our school days, our geography was wont to describe this State as "famed for its fine fruit." This fame now seems to be a myth, for the more truthful description of the present day would be, famous for its want of fine fruit. We have watched this change with a melancholy interest, and it does seem to us as if during the past fifteen years, this change has increased with each succeeding year. Probably at no time in the history of the State, has more fruit been planted, or greater attention paid to its culture than at present, and yet, certain it is, that never was there so little fine fruit seen in the State. It may be said as true to a general intent, that not a perfect apple has been raised in the State of New Jersey during the year 1865. If any one possesses a perfect specimen of this fruit raised in the State, we would like him to exhibit the same as a curiosity, and will take our sack in hand and make a pilgrimage to see it, and do him reverence. We take the apple as our illustration the more especially, because the most important, and generally the most plentiful of all the fruits, and yet the one on which the most wholesale devastation has been wrought. Of the smooth skin stone fruits, such as the apricot, the nectarine and the plum, we scarcely deem it worth while to make mention, for no one now undertakes to fruit them unless it be under glass. And what we have to say of the State of New Jersey, is equally applicable to the neighboring States, particularly near the sea coast. The great question then is, where is this going to bring up; where is it all going to end? It needs no prophet's vision to foresee. We can tell you in plain words what will soon be the result, not only in the State of New Jersey but in every State in the Union; and that is, that of no fruit will we ever have an abundance, but with each year an increasing scarcity of all those which formerly we enjoyed in superabundance. The apple will be more scarce than the pear, and by and by, both will be among the things that were. So too with the fruits of a shorter season, the cherry and the peach. The former is already sparse, and the latter must in time yield and come in for its share in the general doom. And all this the result of the remorseless enemy. These are sad thoughts to contemplate. We are not croakers, but speak words of sober truth, however disagreeable they may sound. There is no mistake about it, unless something is done, and done soon, we shall have to bid good-bye to our fruit. As we have said, this enemy will conquer us unless we subdue him. It will be asked, can nothing be done to avert this calamity? We answer unequivocally, yes! Yes if we arouse ourselves in time, and fight the enemy without rest. One steady campaign against him until the victory is assured. We have a natural ally in the birds, once on a time a match for the enemy, but now, from our bad treatment, his wasted ranks are overmatched. What we want is concerted action—pulling together—not like General Grant's baulking team, but all acting together, at one and the same time. We want a general dissemination of practical knowledge in the art of conducting this war—practical knowledge brought home to every grower of even a single apple or a single pear tree. Much has already been done in certain quarters; the science of the

Entomologist has been brought into requisition, and we have, as the result of his investigations, much valuable knowledge, but it is generally of a kind but little adapted to the wants of plain, practical farmers and fruit growers. We want information stripped of all technical terms and scientific phraseology. We want books which shall describe the various insects to fruit and vegetation in such wise that they may be known and recognized the moment they are seen; lessons which will teach us to discriminate between friend and foe, to discern either at a glance, and to know their seasons, their transformations, their modus operandi and their whole life. Pictures colored true to nature to assist the learner, for no mere print and description will suffice to identify the insect to the unlearned; he must have

FIG. 47.

an exact picture in form and color, for the insect tribe is so numerous and various that plain black drawings seem to produce only a confusion in the minds of the ordinary student, and in despair he gives the subject up as beyond his scope.

This desideratum has lately been supplied in part by Dr. I. P. Trimble, Entomologist to the State Agricultural Society of New Jersey. The work is entitled "A Treatise on the Insect Enemies of Fruit and Fruit Trees," published by William Wood & Co., New York. The part now in print treats of the Curculio and the Apple Moth, or as it is commonly called, the Apple Worm. The author has done good service to the cause by this work; he seems to have laid aside all pretensions or desire to appear as a book maker, but on the other hand to be animated by an enthusiastic wish to communicate information in a simple, straightforward manner, ignoring all scientific phraseology, and teaching his lessons in plain English, without any particular care as to systematic order, so long as he makes himself and his subject thoroughly understood by the reader. His style is quaint, with an occasional smack of quiet humor quite refreshing. The illustrations of the work are done in a masterly style, and as specimens of art, are, in themselves, worth the price of the book. In them we have the ravages of the insect brought before the eye, just as we see them in the defective fruit we handle. Of these illustrations we have selected one for this article, which we use by permission. It represents a trap made of a rope of hay, the invention of Dr. Trimble, who says: "Two years ago I took from the crotch of a young Bartlett Pear tree, an old boot leg that had been doubled up and forced into that crotch. It had become so hard and dry, and the growing tree had pressed it so closely, that it had to be cut to pieces to get it out. This was in April. That old boot leg contained in its different folds, sixteen of the worms of the Apple Moth, in their larva or caterpillar condition, all snugly tied up in their silken cocoons. When these cocoons were opened the worms would creep off, just as they would have done when taken from apples or pears in the fall or summer before. Since then I have tried everything I could think of that would be likely to suit the fancy of these little caterpillars, having this instinctive impulse to seek out places for concealment. The result has been, that the hay rope band, as shown in this plate, is not only the cheapest and most easy of application, but the best of all the contrivances that I have tried thus far."

The mode of applying the hay rope is seen in the cut, and consists simply in winding the rope moderately tight three or four times around the tree, and securing the end so as to prevent its becoming loose and falling off. The marks below the band show the slight cavities made by the Apple Worms under the rope, as seen after slipping it up and taking out with the point of a knife the cocoons. The tree in the cut represents one in the garden of a friend of the author in the city of Newark, on which he had experimented in this way and caught nearly two hundred worms in the year 1864. The author says, "These bands should be put on the trees as soon as the fruit shows signs of the worms being at work, from the middle to the last of June. They should be examined every two weeks, as long as the warm weather lasts, the earlier broods of worms becoming moths, and producing a second crop. If the orchard is pastured, the bands must, of course, be put out of reach of the animals. Sometimes it may be necessary to place them round the limbs; in that case the scales of bark on the bodies of trees below them should be scraped off." The tree in the plate, our author further says, "showed until some time in June, a promise of a most bountiful crop; but then the young apples began to fall, and persevered in falling till not a dozen were left to come to full maturity." Here we have an evidence of what results from the combined attack of the Curculio and Apple Moth, and we know that there are hundreds of others who can relate a like experience, but who have never investigated the cause. We had the pleasure one fine day in the fall of last year, of witnessing, in company with several other gentlemen, the result of the Doctor's experiments with the hay rope, and can give our unqualified testimony as to his success. It is a very simple, inexpensive and quickly applied method of fighting the enemy, "In examining the traps, all that is necessary is to slip it up the body of the tree a few inches, and all the little cocoons, with the worms inside of them, are so perfectly exposed that nothing remains to be done but to crush them with the palm of the hand, either with or without gloves; then push the rope back again to the same place, or lower if necessary, to make it as tight as it will well bear without breaking." Even if these bands should be neglected and time wanting to kill the cocoons, by simply taking off the straw, the birds will come and make a feast of them, and thank the foresight of him who, by so simple a contrivance, gathered all the worms of the tree into one little compass so easily got at. We feel that this subject of insect enemies is a most important one, that the evil can in no wise be exaggerated, nor the importance of a prompt and energetic action be over-estimated. Let every one then, as he hopes to preserve our fruit, begin at once to work; let clubs be formed everywhere, for the purpose of getting information on the subject and securing a concert of action. Let no one be discouraged at working singly, for he can do much to preserve his own fruit, if he does not effect the general result; but above all let there be a combination, so as to secure the end. Two or three vigorous campaigns and the victory is ours. Let any man who neglects his fruit trees and allows his fallen apples to lie upon the ground to add to the hosts of the enemy, be looked upon as a pest himself in his neighborhood. Let our Agricultural and Pomological Societies everywhere take the matter up. Let our Legislatures give every encouragement by passing stringent laws for the protection of friendly birds, and the giving to the masses, instruction in the science of fighting these insects. In the report of the Committee on Agriculture to the Assembly of the State of New Jersey, the subject is given quite a prominency. We quote an interesting passage, viz: "The number of insects known to naturalists comprehend some hundreds of thousands, and quite a large number of them are more or less injurious to the farmers' crops; but the insect enemies of fruit and fruit trees do not exceed twelve or fifteen, and if five

or six of the worst of them were thoroughly understood and conquered, fruit growing would again be a successful business. *And this can be done. The protection of fruit from these insects can be made a fixed science*, so that the man who chooses to go into the business of fruit growing, may be sure of success, provided he permits no other pursuit to interfere with the proper attention to this, at the right time."

We commend our readers for further information to this elegant work of Dr. Trimble, which we hope to see carried out to its completion, and put into a shape which shall bring it within the means of every one.

DESIGNS IN RURAL ARCHITECTURE. No. 13—A SUBURBAN COTTAGE.

BY GEORGE E. HARNEY, ARCHITECT, COLDSPRING, PUTNAM COUNTY, N. Y.

We used to indulge in an occasional talk with the members of the worthy brotherhood of horticulturists, concerning their country places—their houses, their gardens, their barns, and their stables, more than three years ago, when we were in Lynn, Mass.; and, in so doing, gave ourselves a great deal of pleasure, while we endeavored to be of some service to them in building their houses, in laying out their grounds, and in appropriately ornamenting them, offering designs for their inspection, and, now and

Fig. 48.—*Perspective.*

then, throwing out what we conceived to be a suggestion for some improvement or other.

And now—located here on the banks of the Hudson, nearer the most of our readers than before, in fact, in the very midst of them, and consequently knowing their wants better—we again take up our pen and pencil, promising ourself another indulgence in the same pleasure of talking to them, hoping to make ourselves acceptable to our old friends, and to make new friends among the newer members of our brotherhood—those to whom as yet we are a stranger.

And we offer them at this time, in commencement, a design for a small cottage, such as one might build on a village lot of sixty or a hundred feet in width.

It is of frame, filled in with brick—soft brick, laid on edge in mortar—and covered with vertical boarding and battens, or with narrow horizontal siding; the roof covered with shingles cut in patterns; the cellar of rubble-stone; the wall 20 inches thick, laid in mortar.

The frame is of spruce or hemlock (the former is the best, but the latter is the most generally used in this part of the country), and the outside finish of white pine—the details few and simple, but bold and strong—everything meaning something, and telling its own story. The roof is quite steep, and the projection of the eaves broad to shield the sides, and the windows are all broad and airy.

The accommodation of the house is as follows:—A verandah, 6 feet wide, shielding the front entrance. The hall, containing the staircases to the chambers and cellar, and opening into the several rooms on this floor. Parlor, 14 feet by 15, communicating by French casement windows with the verandah on one side, and with an open gallery on the other side, and having, besides, a large hooded mullioned window in the front.—This room has, also, what we consider indispensable in a country house, be it large or small—an old-fashioned open fire-place, for burning wood on the hearth, if wood can be had, or, if not, coal in a grate, and, besides, for purposes of ventilation. We think, for practical reasons, the old poetic sentiment of the family fireside and the blazing log should not be lost sight of, and there should be at least one room in every house—the room that is the most used by the family as a sitting-room—made attractive and healthy by this means.

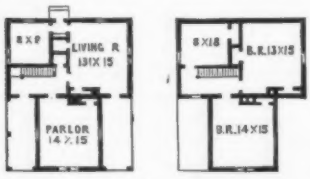

FIG. 49—*First floor.* FIG. 50—*Second floor.*

The living-room, measuring 13 feet by 15, is provided with two good closets, and opens into a little pantry, which is fitted up with a sink and pump, and other pantry conveniences. This opens out upon a stoop to the yard. There is also on this floor a room 8 feet square, which may be used either as a bedroom or as a store-room; it has no chimney, though if one were added, as easily might be, it could be used as an outer kitchen or scullery.

There is a cellar under the whole house, reached by stairs under the main flight.—It is provided with a rain water cistern, bins for coal, and the other usual cellar conveniences of lock-up—cold cellar, hanging shelves, &c., &c. It has a separate entrance of stone steps from the yard, and is 7 feet high in the clear.

In the second story are chambers corresponding severally with the rooms below, and each supplied with a closet.—There is no attic, but an opening in the ceiling of the hall communicates with the vacant space above the rooms, and into it ventilates the house, this space having ventilators under the peaks of the gables.

The front chamber has some importance given to it by the addition of an oriel window, after the fashion of some old English cottages—a feature which adds greatly to the brightness of the room, as well as giving some extra space. It is fitted up with a seat, and has glass windows on its three sides.

The interior of this cottage should be fitted up in simple manner with pine; the closets all supplied with shelves, and hooks and drawers; and the pantry with sink and other fixtures. The walls may have a hard finished surface, unless it be contemplated to paper them, in which case a cheaper covering can be used.

The inside wood-work may be stained in two shades with umber and oil; and to add to the effect, the finish for the *best* rooms

may be of selected stock, so that the finest and best-grained wood may be there used.

The outside should be painted three coats of some neutral colors of oil paint—say light browns, or drabs, or grays. The heights of the stories are 9 feet each. The posts are 14 feet long between sill and plate.

Cost—This is an important item, but a very difficult one to come at in these days of changing prices. Two years ago, we might safely have named the cost of this house at a thousand dollars, but at present prices of labor and material, it would cost at least eighteen hundred dollars.

MILDEW AND GRAPE CULTURE.

BY WILLIAM SAUNDERS, WASHINGTON, D. C.

At page 39 of the February number of the "HORTICULTURIST," in an article on grape culture, I find the following sentences:

"Mr. Saunders of the Propagating garden at Washington, for a long time contended that aridity was the cause of mildew, then wavered and confined his remarks about aridity to the exotic grape, gooseberry and certain other exotic plants; now says that humidity is the cause of mildew on our native grapes, and by a covering to keep off moisture from the foilage, we can entirely prevent mildew."

With many others, my attention has, for a long period, been directed to observations on grape mildew; I have also on several occasions, taken the liberty of expressing my opinions based upon these observations. In order to show how far the views of your correspondent are correct, and how far erroneous, I propose tracing some of my recorded opinions on the subject.

Commencing with the "*Philadelphia Florist*" for 1852, at page 38 will be found an article by me on grape culture under glass. For several years previous, I had arrived at the conclusion that the cause of mildew on the foreign grape in this country, was induced by aridity. In this article, I quoted from my note-book of 1851, an instance where its ravages were checked "by closing all bottom or low ventilation, and keeping the atmosphere moist by liberal use of water on the floor."

At page 178, of the same journal for 1853, in the calender of operations for the fruit department, I again direct attention to this subject, and extend my remarks by alluding to the circumstance that various other plants of similar origin, are similarly attacked, but as I find that the remarks in that paper are in the main repeated in an article published in the "HORTICULTURIST," prefer quoting from it.

It may be well to state here that, being fully convinced from my daily practice, of the pernicious effects of bottom ventilation in producing mildew, I had several graperies built in which no means were provided for front ventilation. I also advised others to build in this manner; and having advocated and practiced the erection of glass structures on the fixed roof plan, I drew attention to its superiority for graperies on account of the low angle on which the roof could be laid, thereby providing a more equable temperature, and allowing an equal distribution of atmospheric moisture. The first structure built on this plan, so far as I am aware, I had built in 1850. This mode of constructing glass roofs is now very generally adopted.

In the volume of the "HORTICULTURIST" for 1855, at page 129, there is an article headed Grape Mildew, in which I stated my views on this subject, and from which I make the following extracts:

* * * "My experience in grape culture leads me to the belief that the true source of this disease has not been fully

recognised. It is well known that fungoid attacks are a consequence of disordered organism, and not a cause. The germs of parasitic fungi are constantly present in the atmosphere, ready to develope whenever they find a proper medium. This medium is found in decomposing organic substances, and such are seized upon, although decomposition is so incipient as not to be visible to the naked eye. The question then is, what occasions this disorganism in the grape? The answer will show the cause of mildew."

* * * "Mildew is so often associated with dampness, that, in the absence of practical observation, such a conclusion seems very plausible. I am of opinion that in this case we must refer it to a deficiency rather than an over supply of atmospheric moisture. *Lindley*, in his *Theory of Horticulture*, remarks that "mildew is often produced by a dry air acting upon a delicate surface of vegetable tissue," and we can readily suppose that the excessive and long continued heat of our summers would, by great and constant evaporation, weaken and tend to general debility, more especially in regard to exotics. This supposition is further strengthened by the fact that all our native grapes have thick skins, and are thus enabled to resist evaporation from their surface. Early forced grapes, that are ripe before the dry season, are never troubled with mildew. The gooseberry attains greatest perfection in cool, moist climates, with us it mildews. The leaves of many plants, not natives, as the English hawthorn, lilacs, &c., are frequently white with mildew in the hottest and dryest seasons. I have long ago satisfied myself that mildew may be prevented by judicious airing. Admitting currents of dry air to come in contact with the young fruit will certainly produce mildew. I consider front ventilators quite unnecessary in graperies, and indeed they could be dispensed with in green houses also."

* * * "It may be necessary to observe, that I do not by any means suppose that aridity is the cause of every kind of mildew. On the contrary, that is only one of many known causes, and I submit that it is the most likely in the present case."

During the years 1856–57–58 I prepared a monthly calender of operations for the "Horticulturist," and frequent allusions are made in these articles to grape mildew and its prevention, based upon the supposition that it proceeded from dryness.

For instance, at page 296 in the volume for 1856, under the heading *Grapery*, in the June calender, I advise to "keep the atmosphere moist by frequently sprinkling the house with water; this will tend to prevent mildew. Ventilate exclusively by the top openings, and leave them open to a certain extent both day and night. "Ventilate early in the morning and shut up early in the evening," is common advice, and those who adopt such a course need not be surprised if their fruit is deficient both in color and flavor. *The fruit will ripen earlier when the temperature is kept low and cool in the absence of light.*"

It will be observed that in all these writings I have had reference exclusively to the foreign grape and its culture under glass. No mention whatever is made of the native species or their varieties.

So far as I can discover, the first time that I made any allusion to mildew on the native grape will be found at page 536 of the "Horticulturist" for 1858. In a brief note treating generally on mildew, I remark as follows:

"The peculiar atmospherical conditions tending to the increase of mildew are not particularly well understood. I have frequently repeated my conviction that the mildew seen on the foreign grape under glass, on the gooseberry, lilac, &c., is induced by atmospheric aridity. This mildew developes in the form of a moldiness on the upper surface of the foliage, and frequently extends and envelops young growing shoots, in which case the bark seems to contract and crack into lengthened openings. Here can be traced a close re-

semblance to the cracking of the pear, going far to prove that it has the same origin. In sheltered city yards, where drying winds are arrested in their sweeping progress, and where a quiet and more humid atmosphere prevails, the foreign grape will frequently attain to a fair perfection. So also the White Doyenne pear is annually produced in its greatest perfection on trees similarly located, while in exposed situations, a few miles distant, a fair specimen cannot be procured. No reason that has ever been brought forward on the probable cause of pear cracking is so philosophical, or so much in accordance with recorded facts, as that which connects it with mildew. The mildew seen on the native grape, is apparently a different fungus from the above. Here the *under* side of the leaf is attacked, destroying the vitality of the tissue, which is then tender, and is speedily scorched by sun, and the leaves decay and wither. When this occurs during the ripening of the crops, the sudden loss of foliage prevents it from maturing, and hence many bunches will show one half of the fruit black and the other half green. This apparent scorching is most noticeable during the months of August and September, when heavy night dews are succeeded by hot sun, or after a few dull or rainy days."

In the above extract it will be observed that I have attempted to describe the different appearances of mildew as presented on the foreign and native grapes; this distinction I have ever since kept steadily in view whenever I had occasion to refer to this subject.

The next article I will refer to is one prepared by request of the American Pomological Society and published in their report of 1860.

In that article, (after considerable investigation of mycological works), I ventured to name the distinct forms of mildew, alluding to them as follows: "There are two very distinct forms of mildew seen upon the grape vine. One of these, which I take to be a form of *Erysiphe*, is mainly confined to the exotic grape, and the other, a form of Oidium,* chiefly found upon the native varieties, I am not prepared to state that they do not respectively attack both the exotic and native grapes, for although I have seen the Oidium on the foreign sorts when grown under glass, I have not detected the Erysiphe on the native grapes. The Oidium, so far as my knowledge of it extends, makes its appearance in the grape house only on vines that have been grown in an excessively humid atmosphere, combined with a high night temperature, the shoots being very succulent and immature, if cold or dull hazy weather succeed a period that has been clear and dry, the Oidium will usually be found on the leaves. It presents itself in small patches, of a whitish color, on the underside of the leaves, and spreads rapidly. The affected leaves are readily detected after a few clear days, the sun turns these parts brown, and it then assumes that appearance frequently termed sun scald."

In this article I further directed attention to the species of native grapes most liable to mildew, having found that even in their native habitats the Vitis Labrusca was often mildewed when the Vitis Cordifolia was entirely exempt. The Clinton being a cultivated variety of the last named species, I suggested that attention should be given towards originating improved forms of that sort, so as to secure a race of truly healthy grapes.

Referring to the influence of culture I alluded to the fact that "vines allowed to clamber unrestrained over trees and bushes, will retain a vigorous healthy foliage, and ripen fruit, while branches from the same root, trained alongside on an open trellis, would be completely destroyed, in seasons favorable to mildew. We have also observed isolated cases of negligent culture, where vines have been allowed to grow during the whole summer unmolested, and ripen a good crop, while those that have been carefully tended, laterals kept in check, and luxu-

*I have since been led to believe that this is most probably a Perono pora.

riant growths carefully pruned, have failed to mature any fruit. Now the reason for this success, where success was not to be expected, is easily explained; simply the shelter of the foliage from the causes predisposing to mildew; in the first case by the foliage of the trees, in the other, by the mass of foliage left on the vine."

I then proceeded to give examples of the efficiency of shelter and protection, citing among others that of a common trellis protected by a board sixteen inches in width, nailed flat down along the tops of the posts.

I will now only further refer to an article at page 495 in the Agricultural report for 1861, headed *Remarks on grape culture with reference to mildew both on the native and foreign varieties.*

In this paper I again somewhat elaborately stated the result of my observations and practice on mildew, and recommended a form of covered trellis for out door grapes, accompanied with a sketch of the arrangement; remarking that "Undoubtedly shelter of some kind from sudden changes and atmospheric currents, is one of the most prominent expedients for preventing or modifying mildew, and every experienced grape grower can recall instances where even a slight protection proved of great value."

The following remarks also appear in this paper:

"In advancing the opinion that grape mildew is merely the result of atmospheric influences, I do so from a conviction that my observations have been too extensive and too long continued to be mistaken, and too completely free from any preconceived hypothesis, or any ulterior object, to be swayed by prejudice. A further conviction in the correctness of my views, is furnished by the circumstance, that a course of practice, based upon a recognition of this opinion, has proved satisfactory, and has resulted in an immunity from mildew sufficient to establish the truthfulness of the observations which led to its adoption."

To conclude, in the Report of the Department of Agriculture for 1864, at page 608 the following sentence occurs: "Although mildew has been prevalent on many of the varieties, (of native grapes), all have escaped when grown on the covered trellis; a description of which was given in the report of 1861.

Experimental Garden, Feb. 6, 1866.

DIAGONAL TRAINING IN VINEYARD CULTURE—II.

BY D. M. BALCH, SALEM, MASS.

In our last, we had reached the spring of the first fruiting season, and had just completed our trellises, the vines carrying each one cane, about eight feet long, and a short spur of two buds. Shortly before vegetation commences, the soil should receive a dressing of ashes, and be put into good condition; wood ashes are an excellent manure for the vine, and appear to supply it with about all its needs; but of this again hereafter. When the buds are ready to start, the cane is trained its whole length to the diagonal slat nearest it, and disbudded so that the bases of the shoots may be about six inches apart, and on alternate sides of the cane, sixteen in all. These shoots will probably show two or three bunches of fruit each, most of which it will be necessary to remove, limiting the crop to about one dozen clusters, or not over five pounds. These bearing shoots will require no tying-in; they may be permitted to interlace and grow unchecked, unless a few show a strong tendency to rampancy, when a little wholesome correction will be advisable; there is, however, little probability that this will be required, unless the vine be over-stimulated; and al-

though this third season (from the fact that the plant is young, vigorous, extending its roots in new soil, and carrying a very moderate crop of fruit) an excessive wood growth is more likely to take place than subsequently, we have, on the other hand, only alternate slats of the trellis occupied, and consequently plenty of room to indulge the vine in this particular. From the short spur a shoot is trained upright, to grow through the season unchecked, and form a fruiting cane for the next year.—From a bud near the base of this spur, or on the trunk of the vine near its centre, a third shoot is allowed to make about six leaves, and then stopped and kept short; this is to form a spur, from which next season a cane is to be grown, to fruit the year following.

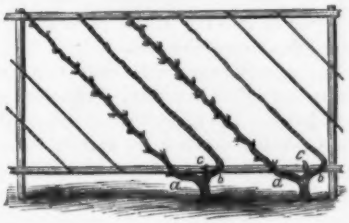

FIG. 51.—*Diagonal Training.*

At the autumn pruning, cut in all the shoots on the fruiting cane (both those which have borne fruit, and those which have not) to two buds; prune the upright cane to eight feet, and train it to the intermediate diagonals that have not yet been occupied, and cut in the short cane to two buds. Our vine now presents the appearance in the diagram, having two bearing canes, A and B, and a short spur, C; the following season it can bear a full crop, thirty-two clusters as a minimum, that is, one to each shoot; those from the spurs of the old cane A, can, no doubt, bear two bunches each without injury to the vine, increasing the crop to forty-eight clusters; this, however, must be left to the judgment of the cultivator.

We have now to consider how to renew one-half the vine annually, so that it can be kept always vigorous and ever young.

This second fruiting season, we train upwards from the spur C a shoot, which is allowed to grow unchecked, and form a cane to supply the place of A, which is to be cut out at the Fall pruning. From a bud conveniently situated near the centre of the vine, we grow also a short cane, to form a spur for the next year. As to stopping and pinching in the bearing shoots this season and subsequently, we are no friend to it; it gives the vine a shock detrimental to its well being; a few that give decided evidence of outstripping their neighbors will require it early in the season; and although the bearing shoots may extend some feet and interlace in all directions, there is little cause to fear that the foliage will become too dense; grapes are ripened by the action of the sun on the leaves, not on themselves; moreover, the upright cane, growing freely, will probably appropriate the superabundant vigor of the vine, and check excessive growth elsewhere. If the soil of the vineyard is too rich, or if, from the habit of the vine, or any other reason, we have to anticipate an exuberant growth of foliage, the fruiting cane may be twisted five or six times round its diagonal, and thus checked; this is an excellent plan, if the trellises run north and south, so that both sides are exposed to the action of the sun; the shoots thus radiate from a common centre in all directions, and produce an open growth very favorable for the admission of air and light. But continual summer pruning is against nature, and ought not to be indulged in.

At the pruning this autumn, we cut out the cane A entirely, train the new cane from the spur C in its place, and cut in the laterals on B; we also cut in the short cane to two buds; thus we have our vine exactly where it was last autumn, except that the relative positions of the spur-bearing and budded canes are reversed. These operations can be followed year after year,

keeping all parts of the vine in the same age and habit of growth, subjecting it to few unhealthy shocks by close pruning, pinching in, dwarfing, or otherwise; and, accidents apart, securing abundance of healthy foliage, a natural consequence of which is ripe fruit. This method has also the advantage that a considerable length of cane is obtained without increasing the length of the trellis, so that all parts of the vine are kept within easy reach. The trellises are, moreover, of cheap construction, and easily repaired. It will be observed that a triangle, containing 18 square feet, is left at each end of the trellis; this may be filled to advantage by an extra branch from the nearest vine, bent into bow shape, and renewed when necessary.

The amount of soil allowed each vine is twenty-seven or thirty-two square feet of surface, according as the distance between the cordons is twenty inches or two feet; the latter distance will no doubt be found most favorable, and this will allow 1,250 vines to the acre, together with necessary roads, lost space, &c. Now, if we can depend upon fifteen pounds of fruit from each vine, a quantity by no means large in suitable conditions, the total product per acre may be easily calculated in fruit or wine.

With regard to the manuring of vineyard, much has been written, and it appears to be generally conceded that nitrogenous manures, and all those exciting a rank growth, are to be avoided. The inorganic substances most abundant in all parts of the vine are potassa, lime, and phosphoric acid; and as these are indispensable to the healthy growth of the plant, the soil must not be allowed to become deficient in them. The quantity of manure required by a vineyard is wholly dependent on the disposal made of its products; if the fruit is manufactured into wine, and leaves, cuttings, and the residuum from the press are returned to the soil of the vineyard, very little manure will be required for a long period; for 500 gallons of must, the average yield per acre, contains less than eight pounds of potassa, and this is everything of importance that is removed from the soil. If the fruit is sold as such, large amounts of valuable mineral salts are removed in the skins and seeds, and must be restored by annual manuring. The best material for this purpose appears to be hardwood ashes, or the ashes of forest leaves, wheat straw, and especially that of bean straw and corn stalks; all of which substances abound in potassa, and supply phosphoric acid, lime, magnesia, &c., in large quantities. The leaves cast annually by the vines, and worked into the soil, will probably furnish sufficient humus. Where summer pruning is practised, the trimmings are immediately hoed in, and decay rapidly; but in the method under discussion, no wood is removed until fully ripe; and as a part of this is two years old, and would decay very slowly if turned under the soil, it is better to burn the trimmings, and return their ashes to the vineyard.

In conclusion, we would state that this system exists but in theory. A method of vine-dressing was desired which should allow the plant to follow its natural habits as closely as possible, with the attainment of certain conditions important to the cultivator; and a result of the examination of many systems, both old and new, is the paper now presented. We publish it with the hope that some lover of horticulture may be induced to assist us in reducing theory to practice; if any such there be, we wish them abundant success. We believe that, by patient experiment, some method of culture might be devised, by which the health of the vines will be ensured, without that lavish expenditure of nauseous drugs now so often found necessary. We do not by any means insist on training the fruiting canes at an angle of 45°, or at a distance of two feet; these are simply the figures we have adopted in our own experiments; but we are of opinion that that method will be found most successful, in which summer pinching and pruning is reduced to the minimum, or wholly neglected.

ABBOT PEAR.

This is one of the handsome appearing pears that, although of native origin and qualities of merit, has been comparatively overlooked by introduction of foreign sorts.

Fruit medium, oblong, obovate, bright clear yellow, with a rich, clear, red cheek in some; dotted; the dots in sun being dark vermillion red; stem long, slender;

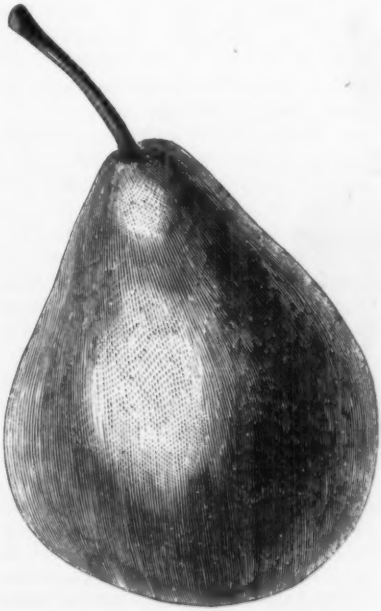

Fig. 52.—*Abbot Pear.*

Fig. 53.—*Section.*

set without cavity; basin, medium depth, regular; calyx, open, with long, reflexed segments; flesh white, granular, melting; coarse granules next the core; sweet, juicy; core medium; seeds large, abundant, light brown. Early in October.

MASTEN'S SEEDLING APPLE.

BY C. R. C. MASTEN.

This apple originated upon the farm formerly owned by my father, but now in my possession; in the town of Pleasant Valley, Dutchess County, N. Y. The tree is vigorous, with a broad-spreading, well-formed head. The shoots are stout, leaves of medium size, and blossoms of a beautiful pink color. It is a very desirable apple for the market, as it always is unusually fair, having a peculiar oily skin, looking as if rubbed with a towel, and is agreeable for the dessert or for cooking purposes.

Fig. 54.—*Masten Seedling Apple.*

The fruit very much resembles the white Winter Pearmain in shape, being medium, oblong, conic.

Skin oily smooth, greenish or pale yellow, with a faint blush or warm cheek, thickly sprinkled with minute light blue and brown spots.

Stalk about an inch long, inserted in a narrow, rather deep and pretty regular triangular cavity.

Calyx closed, and set in a basin of moderate depth, which sometimes is a little irregular.

Flesh greenish white, moderately juicy, tender, with a mild, pleasant, and slightly vinous flavor.

Good from December to April.

Washington Hollow, N. Y.

CLEFT-GRAFTING.

WITH SPECIAL REFERENCE TO TREES AND STOCKS OF THE APPLE AND PEAR.

BY D. S. D.

Every recurring spring brings to my ears the same enquiry, "Who shall I get to do a little grafting for me?" My reply is, interrogatively, Why don't you do it yourself? This second question may be of sufficient pertinence to bear substantially, a repetition in the HORTICULTURIST; and it may therefore be well to ask, why such an interesting recreation is ever neglected by any intelligent pomologist? No more permanent gratification, in the way of fruit growing, can be expected—or, perhaps, imagined—than that of watching, from time to time, the coalescent growth of an apple or pear scion, as it gradually identifies itself with its foster-parent; until, and even after, its due time of fruitage. Emphatically is this true if Nature is thus set to work by one's own individual act;—a recreation truly, in its common acceptation, almost a *re*-creation, in fact!

There seems to be more or less mystery overhanging this whole subject, which is entirely imaginary, at least so far as this department of cleft-grafting is concerned. The manual process is surely a plain one; the proper reason is restricted within no narrow bounds; the requisite implements are few and handy; the labor is too slight to be called labor; and, above all, the inducements and the rewards are not excelled in any department of horticulture; while the conditions of success are easy enough for all.

Grafts and grafting wax are matters of merchandise, easily procurable by purchase, and transmissible through mail bags. By so much are we ahead of our forefathers. A brief order, made out by the always-ready assistance of pen, paper, ink, envelope, and stamp, accomplishes the wonder, in this case, as in many others, of bringing to our hands whatever we want, and making the distant nurseryman as near to us as the nearest post-office. (Grafting materials, cuttings, seeds, vines, potatoes, and so on;—we can buy them all at the Post-office!)

This then, the only slight trouble in the case being disposed of, we choose a pleasant morning; take a saw in one hand, and, if needed, a ladder in the other; with knife and hammer in one pocket, and wax, wedge, and scions in the other, and proceed to our diversion. The selected stock or limb is sawed off, the stump split down an inch or more, the wedge inserted, the tapered graft or two placed in position, the wax applied to cover up all exposures, and—the thing is done. After a moment's gratifying survey of the "job," we attach a label, and confidently leave the object of our miscegenation in the care of a kind Providence.

Even with such general guidance as the above, no one need ever fail of success, after a few trials; but, to save unnecessary expense of time and patience, let us be more explicit. Any stout two-bladed 'jack-knife,' (the large blade for cleaving the stock, and the small one for shaping the taper of the graft,) and a small wedge of hard wood or metal, will answer; but a grafting-chisel with wedge attached, is better. (This, too, can be obtained at the Post Office.) Grafting wax can be easily made, if it is not desirable to purchase it, by the following recipes:—4 lbs. rosin, 2 lbs. tallow, and 1 lb. beeswax melted together and well incorporated; or the proportion of rosin may be greater, if lard be used instead of tallow; or linseed oil may be used in the proportion of 1 pint to 3 lbs. rosin and 1 of beeswax. The preparation should not be too sparingly used, (as is sometimes the case,) but every part that

needs it should be so well covered that it will be sure to last at least through the whole season.

One essential point in the operation of grafting is to be careful that the inner barks of the stock and scion shall meet at their edges. Practice will soon make this easy of accomplishment; but without practice, it can be made sure, by giving a *slight* inwarn inclination to the top of the scion, which will bring the edges exactly together somewhere in the desired line of meeting.

The wedge-shaped end of the scion should be a trifle thinner on one of its bark-sides, which should be set inwards towards the heart of the stock, in order that the outer and thicker side may receive the greater pressure when the wedge is removed.

Sometimes it may be necessary to shield a graft from drying wind, or heating sun, which can be done by tying around it a piece of thick, or oiled, paper.

I have cleft-grafted apple trees successfully, at intervals from the 27th of March to the 25th of July,—a space of nearly four months. How much farther, outside of these limits, the practice may be carried, I cannot say; but this distance of dates is sufficiently wide to remove an excuse for neglect which is often offered, in other matters which require more precise and timely action.

Some years since, when my knowledge of apples was somewhat more limited, I purchased a number of trees of a nurseryman, leaving the selection, in part, to him. Among them was a Gloria Mundi. As soon as I learned its worthlessness for my use I regrafted the whole of it, at different times, with choice varieties, until it became a propagating-tree, with sixteen different kinds upon it. These it was a great pleasure to see growing, and blossoming and fruiting; and it was an additional gratification to have the various grafts ready, at all proper times, for my own use, and as gifts to neighbors and amateur friends.

Amputation and cleft-grafting may be recommended for the treatment of pear-blight, in some cases,—perhaps in all,—with timely attention. The topmost limbs of a twenty-year'-old pear tree, which had been struck with the blight, (atmospherically?) were sawed off some few inches below the marks of discoloration on the bark, and the exposed surfaces covered with grafting wax, as a protection against injury from the elements. In the following spring these were again shortened by being sawed off a few inches below the original cut, and then grafted with different desirable varieties;—all of which have done perfectly well.

The mysterious influence of stock upon scion in promoting early fruit-bearing is also an interesting result of grafting. A few years ago, in order to test the identity of the Boston Pear, *so-called*, with the Pinneo, I procured a young tree from Boston, and the cuttings which I took from it, and inserted in the limbs of a thrifty old English Jargonelle, produced fruit the next year; while the original young tree did not even blossom until seven years later. The tardy Dix, too, I have known to commence bearing, on a young graft, the first year after insertion. And so of apples,—some of the slowly-maturing kinds have been hurried into early fruitfulness by this method of double-working. Seedlings, also, may be "put through a course of *sprouts*," "ahead of time," by the same process.

It may be that *you* knew all about these things before. Perhaps your young horticultural friend did not—for him this is written.

NOTES ON THE FEBRUARY NUMBER.

Fire on the Hearth.—Ah! how the reading of this brings memories of the broad old kitchen fire-place of my early home; where parents, sisters, and brothers gathered, of a cold, frosty evening in autumn, chatting and laughing, the table loaded with cakes, and various ripe and ruddy fruits from the orchard.

How little Americans, as a people, study the after-influence of a pleasant home for the young. While grasping for money and outward show, the softening, chastening influences of a cheerful home-circle are too often forgotten and neglected.

There is one other association belonging to a home that gives pleasant thoughts to the occupants, as well as to the passing world: it is the opening and using all the house. Too many, especially in the country, shut up their best and most pleasant rooms, to be opened "only for company," and content themselves with rooms that have but a side-view, or, perhaps, only a lookout on to the barn, &c.

I never drive past a house, where the blinds show evidence of the occupants contenting themselves with the working but, necessary part, without at mentally once saying to myself—no comfort there; all for money and show on company days. Nor do I, on the other hand, ever pass a house where the windows give evidence of its occupants enjoying all the house, and especially its most sightly rooms, without involuntarily reining my horse up to the gate that I may make one more pleasant acquaintance in life.

Remodeling Old Buildings & Grounds.—This is one of the plain, practical articles from which we may learn how much of improved home-comfortableness (I coin the word) and tasty effects may be had from a judicious studying of arrangement. It is not always that costly structures or perfectly prepared gravel or paved walks, give the most enjoyment; and too many pass on through life with the same old tumble-down gate and rude, unattractive cornices and roofs, when with the use of a few hundred dollars, the whole appearance could be changed to attract and please not only themselves and their families, but every passer by.

Discrepancies of the Grape Culture.—Another of the records in Horticulture, illustrative of the fallacy of crying *Eureka* because our experiments in cultivation become a success. Like the talented and venerable writer, I have been laboring years in study of the vine, its habits, diseases, &c., and have now less confidence in my knowledge than I had ten years ago. Reasoning from observation, I should conclude that vines of all the strong, rank-growing sorts would succeed admirably in situations thoroughly drained from stagnant water, and yet where the roots can obtain pure water by stretching down two to three feet. Capillary attraction must also serve to keep the soil always moist to within one or two inches of the surface. All such situations in nature's own planting, or that of the earlier settlers at the West, who planted pears and grapes, &c., by running streams and rivers, exhibit results of healthy and vigorous growth, free from diseases, analagous to the like when grown and pruned according to the high artificial, empirical practice of the "gardener to the Honorable Mr. Buncombe." In such locations as the sides of a ditch, river, &c., I should look for healthy plants, but in wet and cloudy seasons a want of flavor and sweetness in the fruit.

I suggest the application of guano to the muck soil, as, perhaps, a requisite wanted for the Delaware.

Flower Pots.—Practical comments, with hints illustrative, but as all reforms are not improvements, so it is doubtful whether a transfer from porous pots to hard-baked or glazed ones may be an ad-

vancement. The condition of the house, its temperature, &c., &c., all should be regarded by the intelligent prapagator, and if carefully and common-sensically regarded, I think plants will continue to be grown —as heretofore—in porous, soft baked, as well as hard glazed pots

GRAPES IN 1865.—Thanks for this record. In an extensive correspondence, I have been getting many such records, and it is singular how the whole sums up. Query—Have not all the varieties allied to Isabella, Adirondac, Israella, &c., more disposition to mildew, in both wood and fruit, than those sprung more directly from the Catawba ?

ESTHETICS IN RURAL LIFE.—A humorous comment upon the practice of many a would be horticulturist.

GARDENS AND PARKS OF GERMANY.—Every line replete with interesting descriptive record.

THE NEW ERA IN GRAPE CULTURE.—Mr. Husman has here given us statistical record of profits in grape growing, for which, as one of the readers of the HORTICULTURIST, he has my thanks. Nevertheless, I cannot concede, as yet, that each and every grape grower may realize annually $6,000 per acre from sale of his grapes and wine produced therefrom.

That Mr. Husman has done so I do not doubt, as he so states it, but it won't answer as a guide-post or prospective view to the grape growers of the States, unless they expect disappointment.

If we take Mr. Husman's 500 Concord vines, or, as he says, four-tenths of an acre, and estimate 160 gallons of wine, (which is all a ton will make of *pure* juice), to the ton of grapes, we have, as a result, over six tons, or say, fourteen tons to an acre. The balance of the figuring is about the same, and while Mr. Husman may lay claim to that amount of product, I doubt if any other vineyard in the States can do so. Missouri is, undoubtedly, a fine fruit State, and I rejoice at this evidence of her productiveness.

Mr. Husman kindly takes me to task, and hints that I am fault-finding in my comments on one of his previous articles. I beg here to assure the gentleman that such an idea as fault-finding never has yet entered my head in commenting on his or other articles. I am a plain old-fogy observer, and my notes are written rather to draw out ideas and practical teachings from their authors, than from any vain imaginings of my capacity to criticise. If I take exceptions, it is not always that I do not myself believe, but that the conclusions or statistics, as the case may be, are so much at variance with generally received opinions as to admit of more light being shed on the subject.

Thanks, Mr. H., for telling how to make and grow cuttings; but in case of varieties like the Delaware, Norton's, &c., that do not strike readily in the open ground, have you ever tried laying the bundles in the ground, on approach of spring, with the lower or butt ends uppermost, and within one or two inches of the surface—leaving them in that position until they have callused, and then planting them out. One grower of my acquaintance practises in that manner and succeeds.

Again, if I mistake not, Mr. Griffith, of North East, Pa.—a gentleman of sound good sense, and possessor of about sixty acres of vineyard—practises growing vines from single buds only, in the open ground, covering with about half an inch of soil and some three inches of fine mulch. Perhaps in a future number he will tell us his way of doing.

Thanks, Mr. Husman, for your invitation to come and see how you prune. Should I do so, it would not be the first time I have enjoyed your genial hospitality, eaten of your grapes, and drank of your wines.

SAP IN TREES AND LEAVES.—Two articles of vegetable physiology that it is well for all to read. They contain no new truths, but the novice in horticultural pursuits should *study* them.

REUBEN.

REPORT ON GRAPES IN MISSOURI DURING THE SUMMER OF 1865.

BY GEORGE HUSMANN.

This was one of the most trying seasons for grapes here, the summer being excessively wet, and but few varieties escaped altogether. The prospects for a most abundant crop have, perhaps, never been so good than they were about the middle of July. The grapes had set finely, and developed rapidly. But excessive rains brought on mildew, rot, and all the evils to which grapes are subject, and but a few of the most healthy varieties escaped altogether. The following observations have been mostly taken on my own ground, and I will let the grapes follow in alphabetical order.

1. *Alicanthe*—Foreign; mildew on leaf and fruit; rotted badly; no fruit ripened.

2. *Allen's Hybrid.*—Mildew on leaf and fruit; some rot; ripened imperfectly about half a crop.

3. *Anna.*—Mildewed badly; subject to all kinds of diseases; worthless with me.

4. *Alvey.*—Some mildew, no rot; ripened its fruit very well; promising.

5. *Arkansas.*—Entirely healthy; ripened a fine crop of fruit; valuable for red wine.

6. *Arrott.*—Subject to leaf blight; no rot; ripened a tolerable crop of fruit.

7. *Brinkle.*—Entirely worthless; poor bearer; subject to every disease.

8. *Baxter.*—Some leaf blight, but ripened a good crop of rather indifferent fruit, which may make a pretty good red wine.

9. *Blood's Black.* — Entirely healthy; abundant bearer of very early fruit of tolerable good quality; valuable as an early market grape.

10. *Brown.*—Somewhat better than Isabella; subject to leaf blight; no rot.

11. *Concord.*—Some rot in some locations, but ripened an immense crop of very good fruit; foliage entirely free from any disease.

12. *Clara.*—Some mildew on the leaves, but ripened a good crop of fruit, of excellent quality.

13. *Creveling.*—Tolerably healthy; fruit of very good quality, bunch rather loose; promises well.

14. *Cassady.*—Mildew and leaf blight, no rot; fruit ripened imperfectly.

15. *Clinton.*—Healthy, and made a good crop.

16. *Cunningham.*—Healthy; ripened a very full crop of fruit, which made a very good wine, and a good deal of it; valuable for the West, *in some soils*, as a wine grape of high character.

17. *Cape.*—Badly affected with leaf blight no rot, ripened its fruit imperfectly.

18. *Cynthiana.*—Perfectly healthy; ripened a fine crop of fruit; very valuable as a grape for red wine.

19. *Catawba.* — Affected by all diseases, mildew, rot, leaf blight; almost a failure; should be eradicated, and Concord substituted in its place.

20. *Canby's August.*—Set its fruit badly, and ripened it poorly; of no value here.

21. *Cuyahoga.*—Subject to leaf blight, mildew, &c.; a very insipid fruit; worthless.

22. *Delaware.*—A very full crop, which, in consequence of leaf blight, dwindled down to a very small one; no rot, but the fruit ripened badly; a fine grape, but does not suit every soil, and has been much overpraised, as it evidently is only adapted to certain localities.

23. *Diana.*—Mildewed badly, and is evidently too much like its parent to be of much value here.

24. *Dracut Amber.*—Healthy, but very foxy; poor quality; very early.

25. *Devereaux.*—The leaf mildewed badly, and the fruit was imperfect.

26. *Ewing's Seedling.*—A tolerably good grape, of the Isabella class, but better in quality; somewhat subject to leaf blight.

27. *Northern Muscadine.*—Healthy, hardy early, and productive, but too foxy.

28. *Elsinburgh.*—Mildews badly; of no value here.

29. *Garrigues.*—A very good Isabella, subject to leaf blight; not desirable.

30. *Garbers Albino.*—Somewhat subject to leaf blight; a poor bearer; of good quality.

31. *Hartford Prolific.*—Healthy, hardy, and very productive; of fair quality; a very valuable early market grape.

32. *Herbemont.*—Healthy, but little subject to any disease, and is, in most of our locations, a very abundant bearer of excellent fruit; a very heavy crop, well ripened, but rather late.

33. *Iona.*—Rotted more than any other grape I had; of twenty bunches, I did not save as many berries; must do better in future, or it will be of no value here.

34. *Israella.*—Tolerably healthy; but the fruit ripened later than Hartford Prolific, and was very insipid.

35. *Isabella.*—Subject to leaf blight and rot; of no value here.

36. *Kingsessing.*—Mildewed badly, and lost all its leaves; poor quality.

37. *Lenoir.*—Healthy, and of good quality, but poor bearer.

38. *Lake.*—Leaf blighted badly, and the fruit was of poor quality.

39. *Louisiana.*—Healthy, and makes a superior wine, but seems to be a shy bearer.

40. *Martha.*—Of all the *new* grapes, this promises best here; healthy, hardy, a good bearer, and of very good quality; a white Concord, but sweeter than its parent.

41. *Mary Ann.*—Healthy, very early, and very productive, but of inferior quality; profitable for very early marketing.

42. *Marion Port.*—Of the same character as Hyde's Eliza; of no value when better varieties can be had.

43. *Norton's Virginia.*—Good in every respect; an immense crop.

44. *North Carolina Seedling.* — Foliage healthy, some rot on fruit, but ripened a very heavy crop of early, showy fruit, of good quality; valuable as an early market grape.

45. *North America.*—Very early, and of good quality, but very small bunches; healthy.

46. *Oporto.*—Of no value whatever; a complete humbug.

47. *Ontario.*—Resembles Union Village; some leaf blight; fruit very large, but did not ripen well.

48. *Preschel's Mammoth.*—Healthy in fruit and foliage; very large fruit; showy; tolerable quality.

49. *Perkins.*—Healthy, hardy, productive, and early; a good early market grape, but very foxy.

50. *Rebecca.*—Leaf blighted badly; fruit tolerably good, but a poor grower and bearer.

51. *Rosine of Smyrna.*—Leaf blight and rot; fruit ripened imperfectly, but is very handsome.

52. *Rulander.*—Very healthy; makes a superior wine; rather poor bearer.

53. *Rogers' Hybrid, No.* 1.—Healthy, fine in every respect, productive, valuable here.

54. *Rogers' Hybrid, No.* 6.—Healthy, very good.

55. *Rogers' Hybrid, No.* 15.—Subject to leaf blight and rot; rather indifferent quality.

56. *Terre Promise.*—Leaf blight and rot ruined the fruit entirely.

57. *Taylor.*—Healthy; produced a good crop; will make a fine white wine.

58. *To Kalon.*—Very unhealthy; of little value.

59. *Union Village.*—Leaf blighted, and ripened the fruit imperfectly.

When we come to sum up this season's experience, we find that the old standard varieties, Norton's Virginia, Concord, Herbemont, and Hartford Prolific, have again proven that they can be depended upon *here.* The Clinton may, perhaps, be included, but I would rather plant the Concord as a *wine* grape, if I had my choice. I think the wine is more agreeable, and it will turn out more to the acre than the Clinton. Among those *promising well* for *wine,* I will name the Alvey, Arkansas, Creveling, Cunning-

ham, Cynthiana, Louisiana, Martha, Rulander, Taylor. Among those promising well for table and market, Blood's Black, North Carolina Seedling, Perkins, Rogers' Hybrid Nos. 1 and 6. These are all healthy enough to be depended upon *here.*

This, Messrs. Editors, is *Missouri experience.* I do not pretend to say that it could serve as a guide for *other localities.* I do not believe that *one* grape will do for the *whole* country, from Maine to California, as some claim for the Delaware; nor do I set up to be an authority. This cheap glory I leave to some other gentlemen, who pretend to be the only good and rational propagators, as well as guides in grape growing I would caution again and again, and I think that caution can not be repeated too often, against following blindly in the wake of professional men, and planting a certain grape, for instance, in Illinois, because it is successful in Pennsylvania. Let every one try for himself, and accept counsel from others, even the most reliable men, *only* with due allowance for difference of climate and soil.

Hermann, Dec. 20.

GARDENS AND PARKS OF GERMANY.—*Concluded.*

And now a word about rural Germany A German rural landscape, finds no counterpart in our own land.

Fences are nowhere to be seen, and hedges only as ornaments. No houses, neither barns, are scattered along the roadsides.

The tillers of the land live together in little hamlets. Their houses are generally small, and one-storied, built of stone and a coarse mortar made of mud and straw. Most of them are whitewashed, and the roofs are steep and covered with red tiles. These little houses are built close together, having barns attached. They have no door-yards but front directly upon the paved street. A German village presents few attractions; there is nothing rural or pleasing about one. Hardly a spear of grass or a shrub grows within its limits, and none reside there except the peasants, a parish minister, a shoemaker, and a half dozen more such worthies. The villages are for the peasants, the cities are for the other classes. Such little hamlets seen from a distance, look charming and picturesque, situated right in the midst of green fields, and often upon some little rushing watercourse, the bright red roofs and little church spire, rising up from among a perfect grove of fruit and nut trees; but as you enter the place the charm vanishes. The absence of all fences and hedges gives to the country a more expansive appearance; but you seldom see large fields of any one crop. The land is tilled by so many small proprietors, that the whole surface of the country looks like a great agricultural Mosaic, made up of numberless little patches of various staples. Here a little strip of wheat, there a square of potatoes, next a strip of beet, and another strip of wheat, and so on ad infinitum. The highways are irreproachable, just as hard and smooth as bowling alleys. They are all Macadamized and very broad, perfectly drained, and always in good condition. I never yet saw a highway in Germany which would not answer for a trotting course. They are all built and cared for by the government, and hence their excellence. They are always lined with trees, sometimes merely ornamental, but generally combining the useful with the beautiful. One of the most delightful drives that I ever took, was from the old historical town of Jena to Wiemer. It was about fourteen miles over a picturesque and undulating country, and it was the roadsides which most of all attracted my attention. In some places they were adorned with trim evergreen hedges; in other with close-

ly cut dense foliaged beeches. These were quite small and shrublike, and cut out into various shapes. Some were pyramidical, some round, some oval, some curved in from a broad base towards the top, and others from a broad top towards the base. Some were so cut as to represent a series of rings, others a series of pyramids, and no two trees looked alike. It is wonderful how much in this way can be done with the beech, and the Germans seem very fond of using it for ornamental purposes. For miles along this road were cherry and pear trees, and alternating with these were beautiful mountain ashes, laden with clusters of brilliant berries. These added much to the beauty of the scene, but I do not think that ornament was their only purpose, for they did good service in attracting the numerous birds from the cherries. And would you see a charming landscape, not of grandeur but of quiet beauty, come to Jena. It lies most picturesquely upon the little Saale, which winds through the green fertile valley like a silver band, while on its borders flourish clustering willows and aspens; and ever and anon the foliage broadens out to form beautiful groves, in which the mighty horse chestnut and fragrant linden predominate. Around this landscape in the valley, is set a girdle of hills varied and attractive. At their foot and up their more sloping sides, are green vineyards and fruitful orchards, and further up on to the summit, are in some cases, dense forests of evergreens; or again, bare stratas of rock. And standing upon one of these summits, you see the valley of the Saale stretching out for miles before you, rich in vegetation and dotted all over with little red-tiled hamlets nestling in among the trees. Right below lies the ancient city, with her old towers and winding streets, rich in historic associations. Beyond, towards the northwest, stretches out the famous battle field, and far in the distance rises the western boundary of the Thuvingian forrest, while here and there on the surrounding hill-tops, you catch a glimpse of some old castle ruin. Here a lone tower, there a solitary crumbling wall, alone remaining to tell of the many strongholds which centuries ago protected this fair valley against the fierce inroads of heathendom. A German autumnal forest cannot compare in beauty with those which crown our own hillside, for the glowing varied splendor of the maple is wanting. But I never beheld a more beautiful landscape than that which spreads out around, before and above you, as you stand of a bright October afternoon, on the grand terrace above the ancient Castle of Hiedelburg. Right below lie the mighty towers and ivy-crowned battlements; the frowning ramparts and grass grown courts of the proud old stronghold of the Electors and Count Palatines of the once mighty Rhine Palatinate crowning with its vast ruins the projecting forehead of the Jetten bühl.

Just below stretches the town long and narrow, with red-tiled roofs and tapering spires. In the valley the green Neckar, smoothest of rivers, glides noiselessly by. On the right, green banks come down to meet the stream, while up the hill-side, the vineyards are yellow, on the southern slopes. Farther up all around you, the oaks and chestnuts have put on their rich chocolate and amberdyed liveries, which form a pleasant contrast to the dark evergreen foliage which crown the summits of Odenwald. To the westward opens the broad, fair plain of the Rhine, a blooming garden, through which the Neckar winds its course like a bow of steel, until your eye rests upon the lofty spires of Manheim, and a line of white vapor extending along towards the north indicates to you that there runs the mighty Rhine, while far beyond, the blue Alsation hills stretch away in the dim distance, joining the clear blue sky, which curtains in the scenes.

> "Oh, could I wish a fairy dream,
> Of fragrance, light and sunny skies;
> There on the Neckar's winding stream,
> Famed Hiedelberg, I most should prise;
> From thy old mouldering castle wall,
> Thou fair Alhambra of the Rhine;
> Behold that vale surpassing all,
> And thousand greetings should be thine."

GLEANINGS.—*Continued.*

IV.

To the lover of nature, the trees, in casting off their summer garments of rich leaves, only reveal to him fresh objects of beauty and delightful study in the marvellous construction of their noble skeletons; in the exquisite tracery produced by the intermingling of myriad branches and delicate twigs; in the lavish variety of character stamped upon each separate species of tree, and upon each individual of that species." I do not propose," says Ruskin, in his "Modern Painters,"—"to examine the characteristics of each tree; it will be enough to observe the laws common to all. First, then, neither the stem nor the boughs of an oak, elm, ash, hazel, willow, birch, beech, poplar, chestnut, pine, mulberry, olive, ilex, carob, or whatever the tree may be, *taper*, except where they fork. Wherever a stem sends off a branch, or a branch a lesser bough, or a lesser bough a bud, the stem or the branch is, on the instant, less in diameter by the exact quantity of the branch or the bough they have sent off, and they remain of the same diameter; or, if there be any change, rather increase than diminish, until they send off another branch or bough. This law is imperative, and without exception. No bough, or stem, or twig, ever tapering or becoming narrower towards its extremity by a hair's breadth, save where it parts with some portion of its substance at a fork or bud, so that if all the twigs and sprays at the top and sides of the tree, which are, and have been, could be united without loss of space, they would form a round log of at least the diameter of the trunk from which they sprung.

But as the trunks of most trees send off twigs and sprays of light under foliage, of which every individual fibre takes precisely its own thickness of wood from the parent stem, and as many of these drop off, leaving nothing but a small excrescence to record their existence, there is frequently a slight and delicate appearance of tapering caused in the trunk itself; while the same operation takes place much more extensively in the branches; it being natural to almost all trees to send out from their young limbs more wood than they can support; which, as the stem increases, gets contracted at the points of insertion, so as to check the flow of the sap, and then dies and drops off, leaving all along the bough, first on one side and then on another, a series of small excrescences sufficient to account for a degree of tapering, which is yet so very slight, that if we select a portion of a branch with no real fork, or living bough to divide it, or diminish it, the tapering is scarcely to be detected by the eye; and if we select a portion without such evidences of past ramification, there will be found none whatsoever.

But nature takes great pains to conceal this uniformity in her boughs. They are perpetually parting with little sprays here and there, which steal away their substance cautiously, and where the eye does not perceive the theft until a little way above it feels the loss; and in the upper parts of the tree, the ramifications take place so constantly and delicately, that the effect upon the eye is precisely the same as if the boughs actually tapered, except here and there where some avaricious one, greedy of substance, runs on for two or three yards without parting with anything, and becomes ungraceful in so doing."

V.

Take one of those little flowers which cover all the pastures, and which everybody knows by the name of daisy. Look at it well; for I am sure you would not have guessed, by its appearance, that this flower, which is so small and delicate, is really composed of between two and three hundred flowers, all of them perfect; that is, having each its corolla, stamens, pistil, and fruit. Every one of those leaves which are white above and red underneath, and

form a kind of crown round the flower, appearing to be nothing more than little petals, are in reality so many true flowers; and every one of these tiny yellow things also, which you see in the centre, and which at first you have, perhaps, taken for nothing but stamens, are real flowers.

If you were accustomed to botanical dissections, and were armed with a good glass, and plenty of patience, it would be easy to convince you of this. But you may at least pull out one of the white leaves from the flower; you will at first think it is flat from one end to the other; but look carefully at the end by which it was fastened to the flower, and you will see that this end is not flat, but round and hollow, in form of a tube, and that a little thread, ending in two horns, issues from the tube; this thread is the forked style of the flower, which, as you now see, is flat only at the top.

Next look at those yellow things in the middle of the flower, and which, as I have told you, are all so many flowers. If the flower be sufficiently advanced, you will see several of them open in the middle, and even cut into several parts. These are monopetalous corollas, which expand; and a glass will easily discover in them the pistil, and even the anthers with which it is surrounded. Commonly the yellow florets towards the centre are still surrounded and closed. These, however, are flowers like the others, but not yet open, for they expand successively from the edge inwards. This is enough to show you by the eye, the possibility that all these small affairs, both white and yellow, may be so many distinct flowers; and this is a constant fact. You perceive, nevertheless, that all these little flowers are pressed and enclosed in a calyx which is common to them all, and which is that of the daisy. In considering, then, the whole daisy as one flower, we give it a very significant name when we call it a *composite flower*.

EDITOR'S TABLE.

To Contributors and Others.—Address all Communications, for the Editorial and publishing departments, to Geo. E. & F. W. Woodward, 37 Park Row, New York.

Improve your Place.—The true lover of rural life is known partly by his disposition to improve or change the present condition of his place. As time passes, events occur, new plants come up, etc., changes must be made, new arrangements formed, or the whole becomes confused. He who truly loves his rural home, and enjoys the growth of tree and plant, will be found constantly making changes, while the show amateur leaves the gardener to keep all clean and tidy, because his place is *finished*. Heaven save such a man, and send him back again to his "cotton and sugar trade," for he has no business in the country.

Osage Orange as an Ornamental Tree.—In ornamental planting, the spreading, rather drooping, elegant habit of the Osage Orange, together with its rich glossy foliage, seems to have been, in a great measure, overlooked. As a tree of second-class station, it has few superiors as regards beauty, and especially when laden with its fruit.

Three or five Osage Orange trees, planted as posts for an arbor, and, as they grow, having their tops intertwined, form one of the cheapest, and yet effective, and satisfactory of summer arbors.

In advertisement "Kitchen Garden Seeds," of Messrs. McElwain Bros., Springfield, Mass., in our March number, some of the type slipped out of the form on being put upon the press. It should read 20 varieties for $1.00. We have no doubt that whoever sends them the dollar will get their moneys worth and more too.

Sturtevant Peach.—To lovers and growers of the peach, no one sort deserves more attention, and has received so little as the Sturtevant. It is much like Bergen's Yellow in appearance, a trifle larger, smaller pit, equally sweet—a hardy, vigorous, growing tree, and a good producer.

The Mahonia as an Ornamental Hedge.—Among all our hardy shrub evergreens north of the latitudes of Philadelphia, the mahonia makes one of the best and most ornamental of low boundary hedges. The plant is nearest to the holly of the old country of any plant that is hardy; it is easy of cultivation, bears the shears, is very ornamental when in flower, and afterwards in berry or fruit.

There are several varieties of it, differing only in size and form of the leaf, but in forming a hedge they may be worked in without reference to their botanical difference. The plants can be moved in autumn or spring, but April and May are the best months for transplanting them.

Soil and Manure for Dwarf Pear Trees.—Of all the fruit trees planted, probably no one kind return, in proportion to the number of trees planted, as little return as dwarf pears. This is partly from a want of knowledge of how to prune, partly from neglect in pruning, or so pruning as to injure rather than benefit, partly from planting the tree in unsuitable soil, and partly from want of knowledge in supplying manures.

Of the last two items only will we now write. Too many are under the impression that dwarf pear trees should be placed in very rich, deep soil, and then annually dressed with three to four inches deep of well-rotted barnyard manure; for such has been the "written and published instructions." The result of such course generally exhibits itself in a strong, vigorous growth of wood, about as close-grained as an elder-bush, and liable to atmospheric injury—*i. e.*, blight—as well as presenting additional attraction to the insect *scolytus pyri*, the blighting effects of which are occasionally to be found, but not by any means as often as the injury from atmospheric influence.

We speak of this rank growth from the influence of free and heavy annual dumpings of animal manures, because such have been the result of our observations in watching dwarf pear growing many years. And now, while we would choose a good heavy clay soil, moderately rich, as the bed, we would prefer a poor clay and no animal manures, to a rich deep soil and heavy dressings of manures. A calcareous clay, a gravelly clay loam, a good ordinary clay loam, or corn ground and a poor hard clay, will all grow dwarf pears satisfactorily, both in tree and fruit; while a sand, or sandy loam, or a muck soil, will in nine cases out of ten result in disappointment. A heavy dressing of animal manure annually will generally result in blight and death of the tree within ten years; while a simple dressing of two bushels of salt and one of plaster of Paris (gypsum) annually, with frequent stirring of the ground during the growing season, will as a general thing result in healthy trees and fine fruit.

The whys and wherefores of this statement can be written if necessary, but here we do not so deem it, and therefore only name the results of long practical observation.

About twenty-five years ago we planted an Isabella grape-vine by the side of the barn. We had read that vines require animal and other rich fertilizing manure, so whenever an animal died, we dug a hole

three or four feet from the building and threw it in. Although so highly enriched, as we thought, it did not grow as well as others that had but little of such materials, and last fall we dug it up and planted a Hartford Prolific in its place. Judge of our surprise when we found in the rich black mass, where many years ago we had thrown the dead animals, not a root. They all avoided it, and the larger part went under the barn, or rather the foundation wall. If we had made a compost with our dead animals and forked it in around the roots, probably it would have grown and borne luxuriantly, for Isabella does grow very well with us if trained against buildings.

ISAAC HICKS,
North Hempstead, L. I.

INQUIRIES ABOUT THE PEAR WHEN WORKED, ON MOUNTAIN ASH, THORN, &c.- A subscriber in Ohio says he has been examining dwarf pear-growing, and finds that the most successful growers advocate planting the tree so deep as that it may take root with the pear stock; and that, as every variety does not readily grow on the quince, or strike out roots when planted in the ground, the practice is to select one or more sorts that readily take on the quince, and then, after the first years growth from the bud, again bud with the untractable variety some eight or more inches above the union of the first sort with the quince. Our subscriber asks if this getting the dwarf to grow from the pear root is essential; and, if so, then why will not the mountain ash, thorn, or apple, act as a conductor or root to the pear for a year or two as well as the quince. And further, he says, if the quince is used, is there any difference in varieties for the purpose?

To these inquiries we purpose brief answers, but shall be glad, also, to have our friends send us their views, as the subject is one of considerable moment.

First, we do not consider it essential to successful and permanent effect that the pear, when worked on the quince, should take root from the pear; but we do consider it essential that the quince stock should all be below the surface of the ground, in order that the return flow of sap from the pear may be freely returned to the quince roots; for, when the quince is all below ground, roots form from it even up to its junction with the pear; but when the quince is any portion of it above ground, its bark dries and hardens, preventing an even and regular return from the roots. The roots thrown out by the pear stock, when below ground, serve to add vigor to the tree; and, as they are lateral roots, so this vigor is imparted more to the spreading than upright habit of the tree. Again, it is rare that the pear sends roots from its own stock until after the tree has been in bearing two or more years, and acquired the habit of mature age, never again to return to youth.

For small grounds, where trees are to stand eight feet distant from each other, as is generally the practice in planting, the striking of the pear in its own root must, in a few years, necessitate a system of root as well as branch pruning, in order to keep the tree in the space allotted it; and, if root-pruning is to be practised, then, as well take the pear on its own roots, and commence at once.

Second—If in growing dwarf pears the object be to get them once into bearing, and afterwards root prune, because of the pear having struck root, then we see not why, in certain soils, the mountain ash and thorn may not answer a good purpose. The ash, however, will not succeed in cold or wet locations, like clays, &c., and it is liable to attack of the borer when grown in light dry soils, but some of the best Belle Lucrative pears we ever ate were grown on mountain ash stock.

The thorn is hardier than the ash, and clays and wet do not apparently affect it more than the quince. Its abandonment for the quince, we opine, has been rather from the greater facility of getting quince stocks than any valid objection to the stock

itself. The largest Seckel pears we ever saw were grown on a thorn stock.

The apple, although at first uniting with the pear apparently well, and growing, perhaps two years, vigorously, then becomes checked, and within the next two years either dies entirely, breaks off, or remains a stunted dwarf, that no system of culture that we have tried would invigorate.

Lastly—The question as to difference in varieties of the quince for stocks, we consider answered, by saying that there is no more difference in quince stocks to work the pear upon than there is in apple stocks to work the apple upon. If the stock is a vigorous thrifty grower, it is a good stock. Unfortunately, a great many quince stocks have been grown from seed, and used as apple stocks indiscriminately, without regard to their vigor or adaptation to the purpose sought. Other quince stocks have been grown from cuttings, made also without reference to the habit of the plant or tree from which the cutting was taken. This indiscriminate manner of working the pear, as well as the apple, &c., in a great measure accounts for the want of success obtained by some planters, and also for the irregular and unequal vigor of trees when grown in nursery-rows and orchards.

Sweet Apples.—Why is it that sweet apples are so little noticed and planted.—We have sixteen acres of orchard, about twenty years planted, and we find, for family use, sale in New York market, stock, and cider, they are full as valuable as acid apples. We have them on the table (except the present year), baked nearly every meal, and are of good kinds. They are excellent to eat as a dessert. Put them in the stove oven when cooking the dinner, and they require no peeling or coring, no sugar, and are a good substitute for pies and pastry, and far more healthy. We have the Summer Bough, succeeded by Golden Sweeting, Jersey Sweet Corlies, Fall Bough, and Willis Sweeting, the best of all. Pound Sweeting, Ladies' Sweeting, Moore's Sweeting, and Talman's are good for winter use. Fine baked apples, eaten with pure rich milk, is about the best supper we have among farmers. We find no difference in the market price, if they are only handsome and in good order. An easy and a good way to cook sub-acid apples is to cut them in two, put about a tea-spoonful of sugar to a large apple, put them in a dish after cutting out the blossom and stem, put another layer on these same as before, and then cover with a dish or cover that fits close, and cook until done. The taste of the fruit imparted by the skin and seeds is very fine. Baldwin and H. Nonsuch are especially nice cooked by this method. A correspondent enquired a few weeks past about planting an orchard around his house. We like to have an orchard as near to the house, especially the summer varieties, as may be; but other shade trees are better in close proximity. Give the apple, cherry, and pear trees a field by themselves, and give them the proper care, and they will repay for the attention, but they make poor lawn trees, and, as they require to be cultivated, and sometimes get full of weeds, as young orchards are prone to, would present an unsightly object in front.

Isaac Hicks, *North Hempstead, L. I.*

Where is there a plant which, during the autumn and winter months, is so gay or beautiful as the Primula? It is also very useful for exhibition or decorative purposes, or for filling the flower vase or bouquet. By artificial light, some of the varieties are very brilliant. During the last season a number of very beautiful double seedlings have been brought before the public, especially those of Messrs. Windebank & Kingsbury, of Southampton, who, at the present time possess some very splendid seedlings.

Where high cultivation is aimed at, care must be taken to keep the plants healthy at all times. I generally sow the seed in March, or in April, in pans placed on the front shelf of the greenhouse or vinery. I

find that to bring the seedlings up well, nothing is so good as putting a square of glass over each pan, and as soon as the plants appear, I remove this to prevent their being weakened. When strong enough I put them in small 60's (3 inch pots), using for soil half leaf mould, loam, and a little silver sand. I keep them in a close frame for a few days till well established, when I give air freely on all favorable occasions. Early in May I repot the plants into 32's (6 inch pots), using the same description of soil as before. I now plunge them in a cold frame, in a shady situation, for the summer months, and in the end of July I repot into their blooming pots, 24's (8 inch pots), using a mixture of half loam leaf mould and a little rotten dung and silver sand. I then replace them in the frame as before, and am always very careful not to allow them to get dry during the summer, as nothing is so injurious to them. Early in September I remove them to the greenhouse, and I thus secure a good supply of bloom for the autumn and winter months.
J. C. Higgs, *Florist and Pomologist.*

St. Louis Horticultural Society.—At the annual election of this Society, the following named gentlemen were elected officers for 1866, viz.:

Norman J. Colman, President.
C. M. Saxton, Vice-President.
J. H. Tice, Secretary and Treasurer.

The Society then took up for consideration the importance of establishing a Horticultural bazaar in St. Louis. All seemed to feel the importance of having a Horticultural House, where the producer could send all his fine fruits and flowers to sell, and where the citizens would know where to go to buy them. A committee was appointed to take steps towards the organization of a joint stock company for that purpose.

A number of samples of wine were tested, viz.: Concord, Virginia Seedling, Herbemont, Cynthiana, &c. They were presented by the President and by Louis Wolfe, Esq.

Fuchsia.—*Prince Imperial.*—We have met with but indifferent success with the Fuchsia as a plant for winter blooming until we obtained this variety. Mr. Peter Henderson sent us a small plant last spring, which was planted in the open ground last summer, where it was soon in bloom. In October the plant was lifted, potted and placed in the greenhouse, where it continued to bloom profusely until the middle of January. After a short rest, it is now, March 1st, a mass of bloom. As a variety for pot culture for winter bloom we doubt if it has a superior. Corolla, dark purple changing to scarlet; sepals, bright scarlet, plant of dwarf compact habit.

Philadelphia, Jan. 19, 1866,

Messrs. Woodward:

Will you oblige a Philadelphia subscriber to the Horticulturist by giving, in the February number of your journal, some information in regard to the planting of a Peach Orchard, and also a few practical hints on the Peach Tree, &c.?

And oblige a regular subscriber who is going to plant a Peach Orchard the coming spring, in the southern part of Maryland.

Yours, &c.,

Philadelphia Subscriber.

The soil and site for your proposed orchard is probably already selected, so that it only remains for us to say, it is a mistaken notion that a poor soil for the peach is the best. True, the peach will grow and bear tolerable crops where other fruit trees would hardly exist, but to produce crops of fine fruit, a rich soil of a sandy nature should be selected. Your trees should be planted about twenty feet apart each way, and the ground kept under culture of some kind.

For market purposes we would recommend the list of varieties given by Isaac Pullen, Esq., of Hightstown, N. J., published in our February number. Mr. P. has had large experience as a grower for market, and his selection of kinds can be relied upon. You will have to look out sharp for the peach-borer. Examine your trees twice

every year, spring and fall, and cut the worms out. Do not be satisfied with poking a wire into their holes, which is a very uncertain way of killing them. The best instrument for the purpose is a half-inch gouge, kept sharp. A small mound of ashes or air-slacked lime, kept around the body of the tree, will keep the borer from entering at or near the root, but will not prevent entirely his attacks. The exudation of gum is generally, but not always evidence of the borer's presence. For the yellows we know no effectual cure, and should recommend the eradication of the tree root and branches on which this disease makes its appearance.

Messrs. Editors:

I always make it a point to read the advertisements in your Magazine, and am pleased to note that the grape-vine men have omitted any longer to offer the "Box layers for immediate fruiting" as the shortest mode to induce those who are getting the grape fever to part with the six dollars for a basket layer, in the belief that it is worth more and will fruit earlier, enabling the owner to pick nice grapes of his own raising the same season of planting. Down with all such humbug in grape culture. Do not teach new beginners to expect impossibilities. Rather let the statements be truthful, or even short of it; they are quite startling enough to make one wonder why men go so far off to seek investments in gold mines, or to bore for oil, when fruit and wine (at present prices) yield so largely It is your duty, gentlemen, and I know it is your wish, to guard your readers against frauds and over sanguine estimates.

One who has "Suffered Some."

Fishkill Landing, Jan. 12th, 1866.

Mr. Editors:

I do not agree with your intelligent correspondent's (Mr. Peter Henderson) article, called, "What not to do," more especially in that part of it relating to plant-growing.

It is just nineteen years since I went a journeyman to Chelsea Botanic Garden, and since that time have been more or less engaged in that branch of gardening—"Plant Growing;" and I never saw or heard of anybody succeed in growing hard-wooded New Holland plants, such as Heaths, Epacris, Acacias, or even Camellias, &c., without plenty of drainage. In fact, if the soil in the pots is not allowed to get dry enough to receive water almost daily, the plants are not in a thriving condition. For it is not so much the soil that feeds the plants, as it is the chemical substances of which the water is composed.

Now, for instance, how would epiphytal orchids do to be planted in rich soil? Or you can take terrestrial orchids, if you please, which are not so difficult to grow; without drainage, they would not grow at all. There are a great many other things I could mention that would not live a single week by Mr. H.'s method of growing soft-wooded plants; and if he had to make a living by cultivating hard-wooded plants, he would then be very soon compelled to change his plan.

If Mr. Henderson chooses to confess, he saw much better specimens of plants grown in the British Isles, when he was last there, than ever he saw in the neighborhood of New York, or any other part of the world. The English journals will be sure to see his article, and will not fail to whip him right and left.

I invite him to come up to Fishkill and see how the orchids grow with abundance of drainage.

I heartily agree with him in saying that the stones at the roots of the apple trees are of no service whatever—more harm than good, because the water is retained at their roots.

I know very well how to grow plants, but would like to hear about the club root cabbages. I am, gentlemen, sincerely yours,

James Cowan.

HARTFORD, Feb. 20, 1866.

MESSRS. WOODWARD:

Seven years ago, at the annual meeting of the Connecticut Grape-Growers' Association, it was voted that the Delaware Grape "promises to stand exceedingly high." A resolution was also adopted, recommending for general cultivation, the following grapes, in the order in which they stand, namely, Diana, Isabella, Hartford Prolific, Concord.

At the recent meeting of the Fruit Growers' Society of Western New York, which was more fully attended than on any previous occasion, ("nearly four hundred persons being present,") a ballot for the best varieties of hardy grapes resulted in placing these varieties in the following relative order of merit, namely, "Delaware, Diana, Isabella, Hartford Prolific, Concord," &c.

The coincidence is noteworthy, and is one of marked significance, which those who are intending to plant grape vines will do well to heed, as such verdicts are intended to go before the public as the authoritative renderings of well-informed juries.

This decision, arrived at on general principles, indicates, probably, as reliable a selection as can be made, at the present time, for garden and vineyard culture in Southern New England, and Southern and Western New York, and "certain localities" further west. In some particulars it may not meet all the requirements of each one's particular case, so that, if either one, or more than one, of the above fails to give general satisfaction, in any one place or vicinity, it is advisable to substitute some variety which is known to succeed, and to add to them some one or more of the numerous untried novelties.

My individual practice has conformed to the above, for I have been adding, year after year, to my small vineyard, more or less of all the well-known kinds above enumerated, (with the exception of the Isabella;) while, at the same time I have also planted out, for trial, almost every new kind of promise. I find imperfections in them all, old and new. The Delaware mildews, the Diana is unreliable, the Isabella is tardy, the Prolific is inclined to drop some of its fruit, the berries of the Concord are thin-skinned and perishable; Rebecca is delicate, Creveling loose-bunched, Manhattan, Union Village, Catawba, and Anna late and uncertain, Northern Muscadine foxy, Yeddo tender; and so on.

I have grown and fruited Iona and Israella, and am disposed to think well of them, but a close-observing correspondent of the *Gardener's Monthly* says of the former that "it drops its leaves and shows more marked symptoms of disease than the Catawba which is by its side;" and of the latter, a Massachusetts correspondent of the HORTICULTURIST says, "it mildews badly." The Adirondac looks well, with me, in wood and foliage, and I am inclined to recommend it extensively for trial, although the few reports which have been made public with regard to it, during the past year, have not been uniform in its praise. Allen's Hybrid—so far as I have tried it—appears to be more perfect, or, in other words. less faulty, than any of the new grapes; and it seems to be gaining in popular estimation. Not one of the whole forty-four of Rogers' Hybrids can be said to have given entire satisfaction;—and so we might go on with specifications, but the road would lead us around and back to our starting place, and content us, probably, to make use of the few tried varieties which, although lacking in one or more of the elements of perfection, were the best which could be recommended by the Connecticut Congress of grape growers, in 1849; and by the New York pomologists in 1866.

D. S. D.

MT. CARROLL SEMINARY,
CARROLL CO, Ill., Feb. 7, 1866.

EDITORS OF HORTICULTURIST:

Noticing inquiry "How to prepare white oak posts for vineyards to prevent decay," it occurred to me to submit my plan for the

benefit of your correspondent, and for the criticism of your readers. I say criticism, because I am an "amateur horticulturist," and "only a woman," and hence do not presume the plan is perfect by any means, and if I can draw out criticism, or suggestions or experience of others, by which I may profit, I may be more the gainer than your correspondent. Having about one thousand posts to set in our vineyard the coming season, and wishing to use timber from our own wood-lot, I set about planning some way to improve and make it more economical than to buy yellow cedar, at $28 per hundred. So to my plan. I had my posts cut in the fall and early winter, the bark and roughness dressed off, and piled in loose ranks for seasoning. Have a tank made of the best sheet iron, forty inches deep, and over two feet in diameter. Have a grate made of oak sticks about an inch sqare, to cover the bottom inside, to receive the blows, should a post be let down hard at any time. Have an old superannuated cook-stove placed out of doors, on which the tank or boiler is set. Fill the boiler with posts placed the top end (*i. e.*, the end that was toward the top of the tree) down; the ends projecting to rest against frame built up to a suitable height to support them from tipping the boiler. Fill the boiler with gas tar, and build your fire under it. Boil till the wood is well saturated with the tar. Thus the post, so far as it goes into the ground, and some inches above, is covered when dry with a surface nearly as hard and impervious to water as glass. I have often seen tar recommended for this use, but have never seen any practicable plan given for applying it effectually. I have had it put on hot with a brush, but it seemed to me a very inefficient process. Any improvement will be gratefully received. When my trellis is completed I propose to have the whole covered with a good coat of tar. I have a grape arbor in process of construction three hundred and twenty feet long, ten feet high, and eleven feet wide, and a floor in it, designed for an out-door gymnasium; hence will want it well covered with vines the year round. This arbor I intend to have thoroughly painted with tar also. Rather a dark picture, you may say, but not so bad methinks as to see the paint and soon the wood destroyed by the moisture under the vines.

Now, I have to ask information. Will some one *who has had experience* give a *good and economical* plan for fruit-house or cellar and ice-house combined? Is "Schooley's plan for summer fruit and ice-house" considered a success? Is it designed to keep fruit as well in winter? I want something of the kind built next summer, and would be grateful for the experience of others.

Will some of your readers who have had *experience* with "automatic gates," and who *know* whereof they write, tell us something about their practical utility? Our standard authority here in the West says, in reply to our inquiry on this point: "We have seen many different kinds of automatic gates, but none we have any confidence in." We have had some thoughts of trying E. Nicholson's, but would know more about it, and also if there is any better one in use. Yours, &c.,

Mrs. F. A. W. Shimer.

Messrs. Editors.

Dear Sirs—Every reader of the Horticulturist would be interested if some way could be devised that would be within the reach of all, for preserving fruit in the natural state beyond the time of ripening. Then fruit-growers would not be obliged to sell when the market is over-stocked, and prices below the cost of raising, and consumers would have an extended season for our choicest fruits.

I am experimenting with houses for keeping fruit, something on the plan of the one in this city, but instead of walls filled in all around with 3½ feet of sawdust, I propose to build with spaces for confined air. Do you, or any reader of the Horticulturist, know of a successful ice-house with

confined air spaces? If so, with what material is it built, how wide the space for confined air, and does it keep ice perfectly? There will be a fruit-house erected in this neighborhood the present season, with spaces for confined air, the success or failure of which I will promise to report to your readers.

E. Nicholson, Cleveland, Ohio.

English Books and Periodicals.—We are now prepared to furnish English books and periodicals, and import the same to order. In our advertising columns will be found a list of some of the publications which we at present have on sale.

BOOKS, CATALOGUES, &c., RECEIVED.

Hans Brinker, or the Silver Skates, by Mrs. M. A. Dodge, daughter of the late Prof. James J. Mapes; published by James O'Kane, New York. An interesting story of life in Holland, combining history and instruction with pleasing details. Those unacquainted with Dutch manners and customs will find them carefully described, and the general reader will find agreeable entertainment in the pages of this neatly-published work..... Protean Cards, or Box of 100 Games; suitable for all ages. John H. Tingley, 152½ Fulton-street, New York. There is provided for, at the expense of One Dollar, we believe, a good deal more amusement than we have ever seen before at so small a cost. One need never lack entertainment as long as they possess a box of these cards..... Canary Birds.—A useful and practical manual for those who keep these delightful songsters. Published by William Wood & Co., 61 Walker-street. Price, 50 cents. (See our Book List.).... Quimby on the Bee.—A new edition, rewritten throughout, of this excellent practical work on bee culture. The author has had large experience, and his directions and statements can be relied upon. Published by Orange, Judd & Co., 41 Park Row, New York (See our Book List.) ....McElwain, Bros., Springfield, Mass., Seeds and Vegetable and Flower Garden Manual....Edgar Sanders, Chicago, Illinois, Plants....David D. Buchanan, Elizabeth, Fruit and Ornamental Trees, &c.....John Crane, Union, New Jersey, Strawberry Plants....William H. Bailey, Plattsburgh, New York, Plattsburgh Nurseries.... D. Redmond, Augusta, Georgia, Georgia Nurseries....John W. Bailey & Co., Plattsburgh, N.Y., Grape Vines....Peter Henderson, Jersey City, N. Y., New Plants....Henderson and Fleming, 67 Nassau-street, N. Y., Flower and Vegetable Seeds....Hoopes, Brother and Thomas, West Chester, Penn., No. 1, Fruit Trees, &c.; No. 2, Ornamental Trees, Shrubbery, &c.....R. G. Hanford, Columbus, Ohio, Columbus Nursery.....F. K. Phœnix, Bloomington, Illinois, Wholesale Price List.....Parsons & Co., Flushing, L. I., Fruit and Ornamental Trees, &c.....J. Vick, Rochester, N.Y., Illustrated Catalogue and Floral Guide..... Hubbard and Davis, Wayne, Michigan, Fruit and Ornamental Trees, &c.....Ellwanger and Barry, Rochester, N. Y., No. 1, Ornamental Trees and Shrubs; No. 2, Fruit Trees; No. 4, Wholesale Trade List.....Washburn and Co., 100 Fremont-street, Boston, Amateur Cultivators' Guide to the Flower and Kitchen Garden. ....Wm. Parry, Cinnaminson, New Jersey, Strawberries, Raspberries, Blackberries, &c., &c.....J. W. Manning, Reading, Mass., Reading Nursery.....Frost & Co., Rochester, New York, Nos. 1 and 2, Fruit and Ornamental Trees; No. 3, Select Greenhouse Plants; No. 4, Wholesale Price List; No. 6, Choice Flower Seeds.....Alfred Bridgman, 876 Broadway, N. Y., No. 2, Vegetable Seeds, &c.; No. 1, Flower Seeds.....Transactions of the Massachusetts Horticultural Society.....Capabilities and Resources of Grundy County, Illinois, set forth by the Grundy County Agricultural Society.....Forty-Seventh Annual Report of the Hampshire, Franklin and Hampden Agricultural Society, Northampton, Mass....Third Annual Report of the Proceedings of the West Jersey Fruit Growers' Association.....B. K. Bliss, Springfield, Massachusetts, Spring Catalogue and Amateurs' Guide.....Hovey & Co., Boston, Mass., Illustrated Guide to the Flower and Vegetable Garden.....John A. Bruce and Co., Hamilton, Canada West, Seeds, &c.